distal part of the optic nerve (that left in connexion with the eye-ball), examined after the lapse of a month in one case, and of two months in another, was also discovered to be unaltered. On the other hand, the part of the nerve behind or on the central side of the section was invariably disorganized. The section was usually performed on the optic nerve of the right eye, and the disorganized fibres of its central segment could be traced back to the left optic tract, through the chiasma, where they obviously decussated with the sound fibres of the opposite nerve. The right optic tract had undergone no change; the fibres of the left tract were disorganized as far back as the quadrigeminate bodies, except those running along the posterior or inner border of the tract; which exception appears to the author to favour the opinion that fibres pass along the tracts and commissures from the quadrigeminate bodies of one side to those of the other side, without connecting themselves with the retina. On the other hand, the results of his experiments do not seem to him to countenance the notion of fibres running in the optic nerves from one retina to the other without connexion with the brain, nor the generally received doctrine that part of the fibres of the optic nerve are continuous with the optic tract of the same side; on the contrary, the whole fibres of the nerve would seem to undergo decussation.

The microscopic characters of the atrophied and disorganized nervous substance are described in the paper; they were found to differ somewhat in the part of the nerve before and that behind the chiasma, owing no doubt to the different structure of these parts in the sound state.

The changes produced in the geniculate and quadrigeminal bodies will be communicated in the succeeding part of the paper.

II. "On some of the Metamorphoses of Naphthalamine." By A. W. Hofmann, Ph.D., F.R.S. &c. Received January 10, 1856.

The great facility with which some of the nitro-hydrocarbons can be reduced by means of iron and acetic acid—the modification of Zinin's process, lately proposed by M. Béchamp—enables us to

obtain the corresponding bases in larger quantity, and to examine their derivatives more minutely.

One of the bases, for the preparation of which this process is particularly applicable, is naphthalidine, or as it is more appropriately called, naphthalamine. Mr. William H. Perkin is engaged in examining the deportment of this substance with chloride of cyanogen, and the following is a summary of the results he has at present obtained.

Fused naphthalamine, when submitted to the action of chloride of cyanogen, absorbs this gas with great avidity, and is gradually converted into a dark resinous mass. This is the hydrochlorate of a new base, which has received the name of menaphthalamine, in consequence of the analogy of its origin with that of melaniline, derived by a similar process from aniline.

Menaphthalamine is separated from the hydrochlorate by potassa, washed and repeatedly recrystallized from alcohol. It contains

$$C_{42}H_{17}N_3,$$

nd is formed according to the equation

$$\underbrace{2C_{20}H_9N}_{\text{Naphthalamine.}} + \underbrace{C_2NCl}_{\text{Chloride of cyanogen.}} = \underbrace{C_{42}H_{17}N_3HCl.}_{\text{Hydrochlorate of menaphthalamine.}}$$

Mr. Perkin has verified this formula of menaphthalamine by the analysis of the hydrochlorate and of the platinum salt, which respectively contain

$$C_{42}H_{17}N_3,\ HCl \text{ and}$$
$$C_{42}H_{17}N_3,\ HCl,\ PtCl_2.$$

Among the various metamorphoses which menaphthalamine undergoes under the influence of agents, the deportment of this substance with cyanogen has especially engaged the attention of Mr. Perkin.

Menaphthalamine, like melaniline, absorbs two equivalents of cyanogen, and is converted into a slightly crystalline buff-coloured substance, which retains feebly basic properties.

The analysis of this body, which, from its composition, may be termed dicymenaphthalamine, has led to the formula

$$C_{46}H_{17}N_5 = C_{42}H_{17}N_3 + Cy_2.$$

Dicymenaphthalamine is insoluble in water, moderately soluble in alcohol and ether. It dissolves readily in acids. The latter solution, when precipitated by potassa, immediately after it has been made, yields unchanged dicymenaphthalamine; but if the solution be allowed to stand for a few moments, a yellow substance is precipitated, which is no longer a salt of dicymenaphthalamine.

The composition of this yellow body, which, in accordance with the terminology adopted in the aniline series, may be called menaphthoximide, is represented by the following formula—

$$C_{46}H_{15}N_3O_4,$$

and its formation is illustrated by the equation—

$$\underbrace{C_{46}H_{17}N_5}_{\text{Dicymenaphthalamine.}} + 4HO + 2HCl = \underbrace{C_{46}H_{15}N_3O_4}_{\text{Menaphthoximide.}} + 2NH_4Cl.$$

In fact, the mother-liquor of this substance contains a large amount of ammonia.

Menaphthoximide may be viewed as binoxalate of menaphthalamine *minus* 4 equivalents of water—

$$\underbrace{C_{42}H_{17}N_3HC_2O_4,\ HC_2O_4}_{\text{Binoxalate of menaphthalamine.}} - 4HO = \underbrace{C_{46}H_{15}N_3O_4}_{\text{Menaphthoximide.}};$$

and this view is corroborated by the deportment of the substance with potassa, which reproduces menaphthalamine and oxalic acid.

From the preceding experiments, it is obvious that the deportment of naphthalamine with chloride of cyanogen is perfectly analogous to that of aniline. The subsequent metamorphoses of the newly-formed compound also exhibit the same analogy.

Aniline series.		Naphthalamine series.	
Aniline.....	$C_{12}H_7N$	Naphthalamine	$C_{20}H_9N$
Melaniline ..	$C_{26}H_{13}N_3$	Menaphthalamine ..	$C_{42}H_{17}N_3$
Dicymelaniline	$C_{30}H_{13}N_5$	Dicymenaphthalamine	$C_{46}H_{17}N_5$
Melanoximide	$C_{30}H_{13}N_3O_4$	Menaphthoximide ..	$C_{46}H_{17}N_3O_4$

Results of much interest are to be expected from the examination of the products formed by the action of heat on menaphthoximide.

It is probable that this reaction would produce the naphthalamine term, corresponding to anilocyanic and cyanic acid.

Cyanic acid..... C_2 H NO_2
Anilocyanic acid..... C_{14} H_6 NO_2
Naphthocyanic acid ..... C_{22} H_8 NO_2

Menaphthoximide, when heated, yields, in fact, a vapour of a most penetrating organic odour; but Mr. Perkin has not yet obtained sufficient material for a more minute examination of the body to which it belongs.

January 24, 1856.

Sir BENJAMIN BRODIE, Bart., V.P., in the Chair.

A paper was in part read, entitled "Account of Pendulum Experiments undertaken in the Harton Colliery for the purpose of determining the Mean Density of the Earth." By G. B. Airy, Esq., Astronomer Royal. Received December 26, 1855.

January 31, 1856.

The LORD WROTTESLEY, President, in the Chair.

The reading of Mr. Airy's paper, entitled "Account of Pendulum Experiments undertaken in the Harton Colliery for the purpose of determining the Mean Density of the Earth," was resumed and concluded.

(Abstract.)

In the first section of this paper, the author explains the reasons, founded on calculation, which appeared to make it probable that the comparison of gravity at the top and the bottom of a mine